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SCHOOLING FOR FAST AND SLOW LEARNERS

by

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SCHOOLING FOR FAST AND SLOW LEARNERS

HOW PUBLIC SCHOOLS can make universal education more effective, despite differences among individual children, is a basic problem that will underlie wide-ranging discussions at the White House Conference on Education, Nov. 28-Dec. 1. Public school authorities currently are under strong pressure to fit educational offerings to the considerable variations in intelligence levels, and in other qualifications, that are found in today's expanded school enrollments. The pressure comes from both educational leaders and parents. Such a shift in the direction of popular education is supported by the nation's need for highly trained manpower and by a growing feeling that schooling should be made more fruitful for the masses of pupils.

On the one hand, schools are expected to provide a rich, intellectually stimulating education for the brightest pupils, who are destined to become professional specialists. At the same time, they must offer programs that will do as much as possible for indifferent pupils who resist educational advancement. For all children, it is the mission of the schools to lead the way toward a useful and well-adjusted adulthood.

Universal vs. Tailor-Made Education

These varied functions cannot be assigned to separate institutions, because it is a democratic ideal to provide for the education of all children through a universal system that will teach them to deal with and respect all kinds of individuals. Nor may the schools simplify the problem by offering merely the dual alternative of an academic education for bright pupils and non-academic training for others. The demand is for education tailor-made to suit each individual's particular needs.

Six major questions are to be taken up by the 2,000 educators and other national and regional leaders attending the White House conference. The first is "What Should

Our Schools Accomplish?"[1] A preliminary review of conference questions[2] cited two opposing views: (1) That the schools should narrow their activities to the traditional function of imparting knowledge and training young people in the basic skills; (2) that the schools should "take on any function for which there is a real social need." Proponents of the second view believe that such an approach is necessary if the schools are to teach all children, of whatever inherent ability, "to live happy and useful lives" and simultaneously stimulate the most gifted children to develop fully their innate powers.

Problems Growing Out of Universal Education

The major problem now facing teachers in elementary and secondary schools is, not the large number of children who must be taught, but the broad range of ability and interest which the pupils possess. Universal education is a relatively new development and few educators consider that the many problems it has raised are near solution.

Only from 5 to 20 per cent of the people in the original American colonies had any formal schooling at all. In a largely agricultural society, before the age of mechanization, book learning was regarded as necessary only for persons going into the professions. Even by the middle of the 19th century the proportion of the country's population that had received any elementary education did not exceed one-half.

Today 99 per cent of all children aged 7 to 14, 94 per cent of the 14 and 15-year-olds, 70 per cent of the 16 and 17-year-olds, and 25 per cent of the 18 and 19-year-olds are in school. At least 90 per cent of all children go through grammar school and more than one-half graduate from high school. If present enrollment trends continue, it is anticipated that within a decade fully 70 per cent of the child population will complete secondary school.

Standards of school achievement were relatively rigid in earlier times. The child was expected to master certain skills and acquire certain knowledge, according to fixed

[1] The other five questions: In What Ways Can We Organize Our School Systems More Effectively? What Are Our School Building Needs? How Can We Get Enough Good Teachers? How Can We Finance Our Schools? How Can We Obtain a Continuing Public Interest in Education?

[2] Committee for the White House Conference on Education, *Suggested "Homework" for the Participants in the White House Conference on Education* (1955), p. 1.

schedules. He either met the standards of his grade and was promoted or he repeated the grade. Continuing failure usually led to a child's dropping out of school. Whether he had been prepared to become a competent, self-supporting citizen was beyond the school's responsibility. In general, it was felt that if a child failed in the early grades, he was not intellectually deserving of further formal education.

When compulsory school attendance laws came into effect, beginning in the second half of the 19th century,[3] the unsuccessful pupil stayed on—oversized for his grade and the despair of his teachers—until he was legally free to quit. It soon became apparent that mere duration of schooling, according to the legal requirement, did not constitute an education for such pupils.

Other pressures for change also began to build up. The semi-literate and the unskilled found it increasingly difficult to make a satisfactory adjustment in the adult world. Meanwhile, psychology and the development of psychological testing had a tremendous impact on the art of teaching. Educators began to take a new look at how people learned and what they should learn. The result was an overhaul of the basic approach to the education of the young which has had repercussions in nearly every classroom in the country.

Concept of Education for Living in a Democracy

The concept dominating modern school practices is "education for living in a democracy." In a practical sense it means that each child must be trained, to the limits of his capacity, to take the place in society where he ultimately will function best for himself and for the community as a whole. Whatever his natural mental endowment and however long it may take him to learn, he should acquire the basic skills of reading, writing, and arithmetic; beyond that, he should be trained in other ways to conduct himself competently in the various areas of adult living.

The schools now are expected to consider not only the individual child's mental capacity but also his emotional and social development. In addition to being educated, he should derive satisfactions from education. If he has no gift for abstract thinking, he is taught by techniques which involve

[3] Massachusetts in 1852 was the first state to adopt a compulsory school attendance law; it required 12 weeks of schooling a year for children aged 8 to 14. In 1914 six southern states still lacked such statutes. Mississippi in 1920 was the last of the 48 states to require universal school attendance.

the handling of concrete materials. If he has no taste for intellectual pursuits, he is taught practical subjects which have meaning for him. If a child learns at a slower than average rate, he is not pressed to keep up; teaching methods and even subject matter are adapted to conform with his slower rate of absorption.

Recognition of the fact that children grow mentally at different rates added a new flexibility to standards of school achievement. Many elementary schools no longer require slow learners to repeat grades; they promote them in a stream of achievement lower than that for brighter children of the same chronological age. The result is that many more youngsters than formerly are able to enter high school; in consequence, the problems of an institution which traditionally served only the upper levels of intelligence are greatly complicated.

To meet the needs of the new element in their student bodies, high schools have adjusted their curricula and methods of instruction. Traditional subjects once required have become elective, and some subjects have virtually disappeared from the courses of study. Vocational education, homemaking courses, citizenship training, and other non-academic subjects have been generally adopted.

Estimates of the Results of Current Practices

Opinions differ on whether the high schools have gone too far in the direction noted, or not far enough. Homer L. Dodge, president emeritus of Norwich University in Vermont, recently observed: "Educationists design their curricula to fit the needs of the weaker students. They are concerned more with lowering standards in order to increase 'holding power'—this is their term for watering down a course—than with raising standards and providing an intellectual challenge and a firm foundation for advanced work." [4]

Other educators stress the inadequacies of the public school system when it comes to educating the non-academic pupil. Prof. Harold F. Clark of Teachers College, Columbia University, recently remarked that "No country has really faced the implications of having all the people in school for 10 or 12 years." He said that "Important

[4] "What's Wrong With Schools in the United States?" *U. S. News & World Report*, Oct. 7, 1955, p. 117.

changes . . . properly should be considered because of the effort to educate all the people." Clark added: "We have a fairly passable curriculum for the top half of the population as measured by verbal ability. It is extremely doubtful if the typical high school program is very meaningful to a large fraction of the bottom half of the population as measured by verbal ability." [5]

Whatever the appraisal of present school practices, virtually all educational leaders agree that suitable education ought to be provided for pupils of all levels of ability. Dodge stated: "Equal opportunity does not mean every youngster should take the same curriculum or should advance at the same rate. In this country we must not only raise the level of the average but also separate out the more gifted students and give them the work they should have."

At a convention of the National Association of Secondary-School Principals last February, many high school authorities made suggestions both for improving the education of the non-academic pupil and for enriching the curriculum of the gifted pupil. The view generally prevailed that "If we can solve the problems of adequately teaching the non-academic pupil in today's high school for all American youth, we will have developed the professional skills, understandings, and attitudes that will enable us adequately to teach the gifted in that same high school." [6] The essential problem is that of individualizing instruction, but "We are still far from agreement as to how to do this or even what should be done." [7]

Provision for Differences in Pupil Ability

TEACHERS have always observed great differences in ability to learn among their students, but it is only within this century and particularly in the past three decades that public school systems have formally recognized such differences and changed their educational practices accordingly. The Binet-Simon test of 1905, the first scientific measure-

[5] Harold F. Clark, "The Scope of Public Education in the United States," *National Policies for Education, Health and Social Services* (edited by James E. Russell, 1955), pp. 40-43.

[6] "Proceedings of the 39th Annual Convention," *Bulletin of the National Association of Secondary-School Principals*, April 1955, p. 292.

[7] Clark, *op. cit.*, pp. 40-43.

ment of intelligence, initially drew the attention of educators to the wide range of mental capacity in the population at large. Meanwhile, publication in 1904 of *The Theory of Mental and Social Measurement* by E. L. Thorndike, the first textbook of its kind, launched pioneering efforts to apply scientific principles to devising tests that would measure individual powers and achievement.

Ratings were based on the entire range of performance by large numbers of individuals who had taken the tests. Results showed that at one end of the intelligence spectrum stood two per cent of the population who were seriously defective in mental powers and, at the other end, two per cent who were extremely gifted.

Differences in Capacity of Students to Learn

The schools began to use such tests on a wide scale in the late 1920s. In the next decade it became clear that the average classroom contained a few children who could not possibly attain the standard goals of the grade in the allotted time and a small number who could easily and speedily excel them; even in the middle group there were few who fitted precisely into the required pattern of achievement. Studies showed that "In a random group of first-graders, the middle 96 per cent would fall within a mental age range of approximately four to eight years." As the same group of children grew older chronologically, their mental age span would widen, so that by age 12 the children would test from eight to 16 years in mental age.[8]

With all children compelled to attend school, the disparity in mental ability continues to widen only until the legal age for quitting school has been reached. Even in the lower grades, the average intelligence will be somewhat higher than for the population at large because the severely mentally retarded are not enrolled. By the last two years of high school, however, the average mentality will be markedly higher than in the total population. In a typical high school graduating class, one-fifth to one-fourth will fall into the upper 10 per cent of the population, while 2 or 3 per cent will be in the extremely gifted group (I.Q. of 137 or more) which constitutes only 1 per cent of the country's total population.[9]

[8] Dan T. Dawson, "Some Issues in Grouping for Reading," *The National Elementary Principal* (34th Yearbook, September 1955), pp. 38-39.

[9] Educational Policies Commission, *Education of the Gifted* (1955), p. 44.

Approximately 75 million standardized tests are now given annually to school children. Extensive research in the field of testing is continually producing new refinements of testing procedures and extending the areas of human ability and accomplishment to be rated.

The intelligence quotient is no longer given the supreme weight it once received as an index of potential achievement. Not only do educators recognize imperfections in even the best testing procedures; they even disagree on what constitutes intelligence. Various kinds of intelligence are now recognized, and such other factors as personality, motivation, cultural background, family relationships, social maturity, and previous educational advantages are conceded to have considerable bearing on what a particular child can and will achieve.

School authorities still rely to a large extent on the subjective observations of the teacher in appraising both the pupil's actual attainment and his capacity for further progress. The U. S. Office of Education recently prepared a questionnaire for high schools which lists 20 different techniques for locating rapid and slow learners. The most frequently used method, according to replies from 795 schools, was "teachers' marks"; second in importance was the rating on group intelligence tests; the teacher's general estimate of the pupil's achievement ranked third. Other factors often considered were the pupil's vocational plans, interests, aptitudes, reading habits, hobbies, and home environment.

Whatever the technique used, the fact that children's learning abilities differ greatly is firmly established. The trend, however, is away from the view that each child possesses a fixed and measurable capacity for learning, and toward the view that each one has learning powers that can be enhanced by individual handling and by consideration for individual social and emotional development. A child's potential achievement is nevertheless always limited by the extent of his natural mental gifts.

Grouping by Ability in Primary School Classes

Special schools or other institutions are provided for children who are severely retarded mentally, but very few special schools have been established for unusually bright children. Thus the regular schools deal for the most part with children whose I.Q.s range from 70-75 up to genius.

The diversity in learning capacity found in the primary school, coupled with the abnormally large size of classes today, makes it imperative for teachers to subdivide classes into smaller groups. In the early heyday of intelligence testing, the grouping usually was based solely on evaluations of mental ability. In recent years there has been a tendency to consider other factors. Among 35 "educationally interesting" elementary schools studied several years ago, only three or four used mental ability alone as a basis for grouping children. Social maturity, chronological age, and educational achievement also were usually considered.[10]

Many different methods of grouping elementary pupils for more effective teaching are practiced today, and a good deal of experimentation is under way. In many schools the teacher simply places together the children who seem to work best and most happily together. Some schools cut across grades to group children for reading classes according to ability. Others have eliminated grades completely, grouped the 6 to 9-year-olds according to reading skill, and shifted them to higher-level groups as they progress. Such children are never "repeaters," and they are not "promoted" until they are ready for the fourth or fifth grade.

Grouping is resorted to chiefly for instruction in reading and sometimes arithmetic—subjects that involve the major skills to be developed in the early years of schooling. Reading specialists believe a minimum of three groups is necessary in the average beginners' class, but they point out that the right place cannot be found for many children in such broad classifications as good readers, average readers, and poor readers. "Reading is fundamentally an individual skill and, as such, can best be learned when instruction most nearly meets the individual's needs." [11]

Individualized Education at the Secondary Level

Many high schools have attempted to vary their educational fare to meet individual pupil needs, but reports to the National Association of Secondary-School Principals indicate that progress to date leaves much to be desired.

Nearly all secondary schools have made some changes in their practices for making provisions for individuals. However, progress

[10] Harold G. Shane, "Grouping Practices," *Nation's Schools*, May 1952, pp. 72-73.

[11] Jill Bonney and Levin B. Hanigan, "Individualized Teaching of Reading," *The National Elementary Principal* (34th Yearbook, September 1955), p. 76.

> has been slow. Most secondary schools make inadequate provisions in this area. Aside from some unwillingness of teachers to change their methods and some unwillingness of parents to accept changes, a further difficulty is present. There are no well-established methods of providing for differences in the abilities of pupils. Curriculum adjustments and instructional methods for this purpose are largely experimental.[18]

Most schools try to avoid separating pupils into academic and non-academic groups. The idea is to mold each pupil's education to his individual needs and goals in life. The chief tools used for this purpose are (1) frequent testing of the pupil's ability and achievement, (2) keeping a cumulative record on each pupil, and (3) utilizing the services of an expert guidance counselor. Continued study of each pupil permits a certain flexibility in his school experience; at no point is he channeled into a program which would leave him unprepared to go on to college if there should be a later awakening of interest in further education.

In general, two methods of making allowances for individual differences are employed in high schools. Either the pupils are placed in separate classes according to ability and interest, or they work together in a single class on group assignments to which each pupil contributes according to his ability and interest.

Among the 795 high schools responding to the recent U. S. Office of Education questionnaire, 48 per cent grouped pupils according to some standard related to learning ability and an equal percentage offered individual instruction outside regular class hours. The most frequently used technique for individualizing instruction, cited by 90 per cent of the respondents, was to furnish teachers with guidance information on each pupil. Nearly two-thirds of the schools provided facilities for flexible grouping within classes; two-fifths gave credit for achievement without regard to time spent in class; and slightly more than one-third had flexible credit requirements.

Some schools offer several versions of the same course for students of different mental capacities. The Hornell High School in Hornell, N. Y., has a three-way program—for average students, slow learners, and those of high academic ability in English, social studies, elementary science, and mathematics. The pupils are mixed, however, for homeroom activities, sports, and social programs. The Julia

[18] "Proceedings of 39th Annual Convention," *Bulletin of the National Association of Secondary-School Principals*, April 1955, p. 295.

Ward Howe Junior High School in New York City divides pupils into six groups, according to I.Q., reading ability, arithmetic achievement, and emotional adjustment. Pupils may shift from one group to another as they progress or as individual capabilities become more evident.

Considerable controversy has arisen over the advantages of ability grouping in high school. Proponents of the system say that a homogeneous group is easier for a teacher to handle and makes for less competitive strain on the pupil. However, stigma sometimes is attached to the lowest group, and certain children in middle groups, frustrated by inability to attain the top level, may lose the urge to accomplish what they can in their own group. There is some risk also that injustice may be done to pupils by placement at the wrong level of potential achievement.

Another difficulty presents itself in the common tendency to regard the poor learner and the non-academic pupil as synonymous. Experience indicates otherwise. One educator suggests that there are four general types of students in the non-academic group: Boys and girls of better than average or average intelligence who tend to be lazy and indifferent to or disdainful of intellectual achievement; able pupils who are poor readers, possibly because of inadequate early instruction; children slightly below average in intelligence; and the mentally handicapped.

Shift Away From Stress on College Preparation

Many secondary school problems arise out of the dual function of high schools. They serve both as college preparatory schools and as institutions for vocational or terminal education. For many years the chief function of the high school was to prepare pupils for matriculation in college; the curricula were strongly influenced by prerequisites established by the institutions of higher learning.

This pattern became fixed in the late 19th century, largely as a result of the efforts of President Eliot of Harvard to bring secondary and higher education into closer relationship. As chairman of the National Education Association's Committee of Ten, Eliot helped in 1894 to draft a declaration which stated: "Every subject which is taught at all in a secondary school should be taught in the same way and to the same extent to every pupil so long as he pursues it, no matter . . . at what point his education is to cease." A

modern historian of education observes that this pronouncement "ushered in a quarter century of persistent and effective effort to streamline the American secondary school into an efficient college preparatory institution." [13]

The Eliot dictum prevailed until 1918, when a Commission on the Reorganization of the Secondary School, also established by N.E.A., called for "extensive modifications of secondary education" in keeping with social changes and advances in psychology and pedagogy. The commission held that "Education in a democracy . . . should develop in each individual the knowledge, interests, ideals, habits and powers whereby he will find his place and use that place to shape both himself and society toward ever nobler ends."

Most of the modern changes in high schools date from this declaration. Its basic principle was reaffirmed in 1946 by a Harvard committee report, *General Education in a Free Society*, which asserted that the high school of today must "find place for every kind of student whatever his hopes and talents." The ideal was set forth as "a system which shall be as fair to the fast as to the slow, to the hand-minded as to the book-minded, but which, while meeting the separate needs of each, shall yet foster that fellow feeling between human being and human being which is the deepest note of democracy." Educators cite this creed as their guiding principle in introducing changes in the secondary school system.

High schools still are affected by widespread employment of the so-called Carnegie unit, a device developed in 1909 to measure school work in terms of credits based on the number of hours spent in a classroom. A major use of the Carnegie unit is to determine a student's qualifications for college entry. A recent study of the unit concluded that it had outlived its usefulness and that its present effect is to "interfere with good education." The study found that the Carnegie unit lent undue prestige to college preparatory subjects, discriminated against other courses, and hampered high schools in developing a "functional" curriculum based on individual students' interests and goals.[14]

On the whole, high schools and institutions of higher learning are becoming more cooperative and gaining more

[13] Nelson L. Bossin, *Principles of Secondary Education* (1955), p. 51.

[14] U. S. Office of Education, *The Carnegie Unit: Its Origin, Status and Trends* (1954).

understanding of each other's problems. An eight-year study, 1933-41, conducted by 30 secondary schools and a number of colleges, showed that graduates of so-called functional high schools which offered "life-adjustment" courses did just as well in college as graduates of traditional, academic high schools. The result was some modification of college entrance requirements. In recent years high schools and colleges in some states, among them Illinois, Michigan, Minnesota, and New Jersey, have entered into agreements under which the higher institutions accept graduates of functional high schools on certificate.

Adjustment of Teaching to Individual Needs

THE JOB of adjusting educational programs to the needs of slow and fast learners is different in the primary school from what it is in the secondary school. In the primary school all children of whatever mental endowment are learning the same basic skills, whereas in high school the pupils are using those skills to pursue a variety of subjects. Learning in the primary grades is a continuous process in which the child progresses by mastering each step in the acquisition of a skill. The secondary school curriculum is more diversified and the elective system permits the pupil to govern in some degree the areas of study.

Current Techniques for Teaching Slow Pupils

Approximately 18 per cent of the pupils in primary schools are slow learners, with I.Q.s of 70 to 90. Although it is generally held that children who rate below 70 rarely become fully literate, an experienced teacher of slow learners in a regular elementary school recently asserted that "Most children above an I.Q. of 50 can learn to read" but the 50-70 group requires "work, dedicated work." [15] Many teachers of mentally deficient children have concluded that learning powers of such children are hampered by frustration from having been frequently subjected by parents and others to demands which they cannot possibly fulfill. Sympathetic treatment and a lowering of immediate achievement goals may result ultimately in surprising advancement.

[15] Marion Funk Smith in collaboration with Arthur J. Burks, *Teaching the Slow Learning Child* (1954), p. 53.

Teachers are wary of evaluating a child's potential capacity in the early grades, because of variations in the rate of growth in childhood. Certain characteristics of the slow learner, however, are apparent in students of all ages.

> He memorizes by rote better than logically. He is not as discriminating as the normal or superior child. He needs more opportunities to observe and make comparisons. He is limited in his ability to be independent, to show initiative and ingenuity. He needs direction and opportunities to plan and carry out activities. . . . He does not detect his own errors as quickly as the normal child and needs more guidance in understanding his mistakes so that he can profit from his experience.[16]

Such children learn best by doing; they cannot grasp abstract concepts but can learn the application of these concepts by handling concrete objects or by dealing with concrete problems. Their powers of retention are poor and memory must be "built in" by constant repetition. Special textbooks suited to their slow rate of learning are usually necessary, especially in reading.

Remedial Reading Classes in the High Schools

A slow learner who has had the right kind of education in primary school will usually enter high school equipped to deal with courses within his range of interest and comprehension. Unfortunately, few are so well prepared. Their deficiency is most apparent in reading. Studies of reading achievement among high school pupils show this to be a widespread problem, even among pupils of average and above-average mentality. Fifty per cent of the pupils in some schools have been rated as retarded readers.

A number of high schools are taking steps to bring pupils up to the reading level necessary to progress in other areas of study. A junior high English class, for instance, dropped its traditional literature program and substituted "developmental reading." Instruction began at whatever level of reading had been attained by each pupil; for some seventh-graders it was necessary to use reading materials normally used in the third grade.

Other schools have given special training in reading instruction to teachers of all subjects, so that reading improvement could be a part of all learning. This proved helpful not only for retarded readers but also for gifted pupils who wanted to improve reading speed and compre-

[16] Helen Hagerman, "The Slow Learner," *The Grade Teacher*, May 1954, p. 24.

hension. The high schools found that the children of lower mentality gained in reading ability in courses where the subject matter appealed to them.

Many of the methods of teaching slow learners, first used in the primary schools, are now being applied at the secondary level. Educators recognize that such pupils do not learn well unless the subject has some meaning for them in daily living, and that they learn best when knowledge is acquired by doing.

Thus while the slow-learning high school pupil must take the same basic subjects as all other pupils—usually English, social studies, mathematics, science, and health—the material is presented to him in terms he can understand. In addition, he has a wide range of non-academic elective courses, some of which will be vocationally or domestically useful later in life.

Many schools, in their efforts to hold reluctant pupils beyond the compulsory school attendance age, have instituted work-study courses in which the pupil is given credit for part-time paid employment. Another change affecting the slow learner's high school experience is that certain extra-curricular activities, once barred to the below-average student, are now being included as credit courses. Many school authorities consider such activities of great usefulness in teaching the slow learner.

Gifted Pupils and Enrichment of Study Courses

Interest in the pupil of unusual mental capacity has been stimulated by the nation's growing need for highly trained specialists. Criticism has been directed at the "education for living" movement, particularly in secondary schools, because of its emphasis on the needs of non-academic youth. Defenders of the new development maintain, however, that the practice of individualizing education and relating it to life experience is beneficial at every level of mentality found among student bodies.

Early studies of mental ability established an I.Q. of 140 as the starting point for classifying a child as "gifted," that is, possessing extraordinary mental powers. The tendency in recent years has been to lower the figure to 120-130 in order to take in all children markedly above average. Roughly five per cent of the general population rates 125 or higher.

The task of identifying the gifted child is not always easy. Some of the gifted are bored and restless and do not apply themselves to their studies. Some quickly learn how to meet school requirements with a minimum of work. In general, the gifted pupil can be spotted by certain distinguishing traits: He learns more rapidly than his fellows; he has superior power to comprehend abstract ideas; he has greater verbal facility; and he can carry on considerable study without supervision. Usually he has also a consuming drive to learn. By and large, the mentally gifted pupil is physically healthy and socially well adjusted, although some bright children develop personality problems because of undue parental pressure to excel or because the school program is for them not sufficiently stimulating.

A generation ago the child who progressed more rapidly than his fellows of the same age was allowed to skip a grade. This practice fell into disrepute because it seemed to accentuate emotional and social maladjustment in the younger gifted child. The more common practice today is called "curriculum enrichment"; the unusually bright pupil is given more work, and more intellectually stimulating work, to do than the average pupil.

Methods of enriching the curriculum are varied and to a large extent experimental. Schools generally require more reading and more original enterprise from the gifted pupil. In one elementary school, for example, the most intelligent children meet with a special teacher for specific periods during school hours; they explore topics not usually included in the prescribed curriculum, such as History of the Wheel, Prehistoric Times, and Great Inventions. The children inform themselves on these subjects, discuss them, and write reports. They may also conduct experiments, take trips for first-hand observation, construct models, and prepare charts, graphs and maps.[17]

Another elementary school gives sixth grade pupils an extra period a week in the library and arranges book discussion meetings for them. Still another employs a "coordinator of education for the gifted" to identify such pupils and conducts special programs during released time from regular classes. The Colfax Elementary School in Pittsburgh has a half-day workshop program for gifted children. Cleveland groups elementary school children of 125 I.Q. or

[17] James M. Dunlap, "Gifted Children in an Enriched Program," *Exceptional Children*, January 1955, p. 135.

higher for pupil-initiated projects, research, discussion, and study of foreign languages and science.

Little formal training has been developed for teachers of gifted children, but it is recognized that such children need superior teachers who are fully versed in their special fields and have talent for "creative" teaching. The Educational Policies Commission of N.E.A. has suggested that teachers of gifted pupils stress "the explanation of the reasons for things." These teachers should permit pupils to select and plan some activities and make their own evaluations of achievement. Assignments should not be too detailed and should invite originality in fulfillment. Gifted pupils should also be given direct and guided contact with the environment outside the school.[18]

Programs for Gifted Secondary School Students

High school programs for highly intelligent pupils follow similar lines. Whether the pupils are grouped for special learning programs or remain in regular classes, the schools attempt to lead them to fuller and more penetrating pursuit of knowledge.

A special factor in connection with gifted high school pupils is the need to encourage them to take courses which will prepare them adequately for later professional study. The role of the guidance counselor under the elective system becomes all-important in this respect, particularly in view of the national shortage of professional personnel. Many educators have voiced concern over the decline in the number of students who choose the difficult courses in science and mathematics that are prerequisites in the training of the specialists in greatest demand. It is recognized also that a considerable number of high I.Q.s, who could fulfill the demands of specialist education if interest in advanced study could be awakened, are among the pupils who do not finish high school.

The Educational Policies Commission recently recommended that highly gifted secondary school students achieve at least a reading mastery of a foreign language. It proposed that such students take also advanced mathematics, possibly through calculus, and more courses in the social studies, especially history, than the average student. If the student has "completed a substantial amount of advanced

[18] Educational Policies Commission, *Education of the Gifted* (1955), pp. 71-72.

academic work in high school . . . [he has] a better basis for choosing his area of specialization in college and he can make a better decision on this matter at an earlier stage in college work." In addition, the student would be "spared the necessity of taking valuable time from his more advanced student years to equip himself with the tools and basic information essential to advanced studies." [19]

Because gifted pupils can absorb knowledge more rapidly, and because a long period of advanced study is required to prepare specialists for their life work, there is renewed interest in accelerating the pre-college education of such students. The U. S. Office of Education recently noted a change of attitude on this question which may affect college entrance requirements.

> The present requirements for college entrance are being made the subject of careful study. A standard requirement of 12 years of schooling offers little provision for individual differences. Many pupils have demonstrated the ability to begin college work after 10 or 11 years spent in school. In the current experimentation, the age, the aptitude, and the social maturity of the pupil are being studied as factors related to his ability to do creditable college work.[20]

In a review of "unfinished business of secondary education," the Office of Education foresaw a day when "at the end of the 10th, 11th and 12th years, pupils who have demonstrated their maturity and competence to do college work will be transferred to college programs," while other pupils will "complete their programs of full-time education with general, commercial, vocational, and technical courses during these years."

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[19] *Ibid.*, pp. 63-64.

[20] U. S. Office of Education, *A Look Ahead in Secondary Education* (1954), p. 85.